BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA
UTILITIES COMMISSION

DOCKET NO. 2014-246-E

In Re: Petition to Establish	**)**	
Generic Proceeding Pursuant to the	**)**	
Distributed Energy Resource	**)**	**DIRECT TESTIMONY OF**
Program Act,	**)**	**JAMES M. VAN NOSTRAND ON**
Act No. 236 of 2014,	**)**	**BEHALF OF THE ALLIANCE**
Ratification No. 241,	**)**	**FOR SOLAR CHOICE**
Senate Bill No. 1189	**)**	

December 11, 2014

Table of Contents

Exhibit JMV-1

I. INTRODUCTION

Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?

A. My name is James M. Van Nostrand. I am an Associate Professor and Director of the Center for Energy and Sustainable Development at the West Virginia University College of Law. My business address is P.O. Box 6130, Morgantown, West Virginia 25606-6130.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf The Alliance for Solar Choice (TASC).

Q. PLEASE DESCRIBE YOUR EXPERIENCE AND EDUCATIONAL BACKGROUND.

A. I have over twenty years of experience representing investor-owned energy utilities in regulatory proceedings. I also have previous experience with the advisory staff of a state utility commission (the New York Public Service Commission) and directing an environmental NGO (the Pace Energy and Climate Center in White Plains, New York). Since 2007, I have been a law school professor, specializing in energy and environmental law. My educational background includes an advanced law degree (LL.M. in environmental law from Pace Law School) and an advanced degree in economics (M.A. from SUNY at Albany). A copy of my current curriculum vitae is included as Exhibit ___ (JMV-1).

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony analyzes various provisions in the South Carolina net metering statute, Section 58-40-10. I provide an overview of the net metering regime and the calculation of "net electrical energy measurement" and discuss the legal distinction between measuring the ***quantity*** of kilowatthours ("kWhs") versus the ***valuation*** of those kWhs, in light of the provisions of Act 236.

Q. PLEASE IDENTIFY THE OTHER WITNESSES FOR TASC AND THE SUBJECT OF THEIR TESTIMONY.

A. Also testifying on behalf of TASC are R. Thomas Beach and Justin R. Barnes. Mr. Beach's testimony proposes a high-level approach to determining the costs and benefits of the net metering program, including discussion of best practices nationally. Mr. Barnes provides background on net metering, nationally and within South Carolina, and provides testimony on recent developments in net metering policy across the United States. The legal analysis in my testimony supports the positions taken in their testimony that Act 236 provides for "true" or "full" retail net metering in South Carolina.

II. ANALYSIS OF NET METERING STATUTE

A. Overview of Net Metering

Q. HOW IS NET METERING DEFINED UNDER SOUTH CAROLINA LAW?

A. Section 58-40-10 defines net energy metering as "using metering equipment

sufficient to measure the difference between the electrical energy supplied to the customer by any electrical utility and the electrical energy supplied by the customer-generator to the electricity provider over the applicable billing period."

Q. IS THIS DESCRIPTION CONSISTENT WITH YOUR UNDERSTANDING OF THE WAY NET METERING IS DEFINED IN OTHER STATES?

A. Yes. As described in the testimony of TASC witness Barnes, the focus is on netting the energy flows (*i.e.*, both to and from the utility) over the applicable billing period.

Q. WHEN A CUSTOMER ENGAGES IN NET METERING, IS EVERY KWH IT CONSUMES SUPPLIED BY THE ELECTRIC UTILITY?

A. No. The utility is not supplying the kWhs that the customer self-generates and consumes on the customer's side of the meter. The customer-generator is self-supplying to the extent of the production from its renewable energy resource.

Q. IS THE CUSTOMER'S ONSITE CONSUMPTION FROM THE GENERATION SYSTEM TYPICALLY MEASURED IN NET METERING?

A. No, not usually. A single, bidirectional meter is commonly used, and the meter does not register a positive or negative measurement when the customer-generator consumes self-supplied energy on its side of the meter (or "behind the meter"). The measurement at the meter would be positive if the customer-generator is not generating enough to meet onsite load and has to

"import" electricity from the utility's grid. The measurement at the meter would be negative if the customer-generator is generating more than it can instantaneously consume onsite and has to "export" electricity to the utility's grid. (This is commonly referred to as "spinning the meter backwards.") For an illustration, Figure 3 in the testimony of TASC witness R. Thomas Beach shows the "three states of net metering" to reflect these concepts.

Q. WHAT DOES THE PHRASE "SUPPLIED BY THE CUSTOMER-GENERATOR TO THE ELECTRICITY PROVIDER" MEAN IN THE CONTEXT OF NET METERING?

A. It describes the electricity that is exported by the customer-generator to the utility's grid. Any generation from a net metering facility that the customer-generator consumes on its side of the meter is self-supply and does not fit within the definition of electricity "supplied . . . to the electricity provider." Rather, this phrase refers to the difference between imported electricity and customer-generator exports or, in other words, the difference between electricity supplied to and supplied by the customer-generator.

B. The Meaning of "Net Electrical Measurement"

Q. WHAT IS "THE NET ELECTRICAL ENERGY MEASUREMENT" IN PARAGRAPH (D) OF SECTION 58-40-10?

A. This requires the utility to measure the "net electrical energy produced or consumed during the billing period." Subsection (1) makes it clear that in calculating net electrical energy, the utility may employ a single, bidirectional

meter that measures the amount of electrical energy produced and consumed (as described earlier in my testimony), or may employ multiple meters that separately measure the customer-generator's consumption and production of electricity.

Q. WHAT IS THE SIGNIFICANCE OF THE PHRASE "THE NET ELECTRICAL ENERGY PRODUCED OR CONSUMED *DURING THE BILLING PERIOD*"?

A. As discussed in Mr. Barnes' testimony, this phrase confirms that the statute provides for "true net metering" in that usage and production are offset over the billing period to arrive at a single number. That number will show that the customer-generator is a net consumer or a net producer over a particular billing period.

Q. DOES THE NET METERING MEASUREMENT REQUIRE UTILITIES TO USE SEPARATE METERS TO SUBTRACT ALL THE OUTPUT FROM THE RENEWABLE ENERGY RESOURCE FOR THE MONTH FROM THE CUSTOMER-GENERATOR'S TOTAL ELECTRICAL CONSUMPTION IN A MONTH?

A. No. That type of calculation could only be accomplished using a dual meter configuration, where all production is measured separately from all consumption. As noted above, subparagraph (D)(1) contemplates that the net electrical measurement can be accomplished ***either*** by using a single bidirectional meter ***or*** a dual metered system, and this type of measurement cannot be accomplished by a single meter. A single, bidirectional meter shows the measurement on a net basis and does not enable a precise separation of

what consumption and production occurs behind the meter. Reading the statute to require the "net electrical energy measurement" to be calculated by comparing gross production to gross consumption would render the bidirectional meter language meaningless. The statute should be construed in a manner that avoids this result. In any event, the measurement accomplished using dual meters should, necessarily, reach the same result as the measurement accomplished using a single, bidirectional meter.

Q. THE STATUTE ALLOWS UTILITIES TO "SEPARATELY MEASURE THE CUSTOMER-GENERATOR'S CONSUMPTION AND PRODUCTION OF ELECTRICITY." WOULD MEASURING GROSS CONSUMPTION AGAINST GROSS PRODUCTION LEAD TO THE SAME RESULT AS THE PROCESS YOU DESCRIBE FOR MEASURING NET ELECTRICAL ENERGY USING A SINGLE METER OVER THE COURSE OF A BILLING PERIOD?

A. Yes, as stated earlier, this is true to the extent that both result in a single number of kWhs representing net consumption or net production over the course of the billing period. An important distinction has to be made, however, that the term "net electrical energy" refers to the straightforward mathematical exercise of measuring only the ***quantity*** of kWhs, without any attempt to place a ***value*** on those kWhs. This should not be confused with approaches to place a ***value*** on kWhs produced, such as pursuant to a value of solar tariff authorized in some jurisdictions.

C. Excess kWh Credits

Q. IS AN "EXCESS KWH CREDIT," AS USED IN THE STATUTE, THE

SAME THING AS A KWH THAT IS EXPORTED FROM A CUSTOMER-GENERATOR'S METER BECAUSE THE CUSTOMER'S PRODUCTION EXCEEDS CONSUMPTION IN THAT INSTANT?

A. No. The net metering measurement determines only that there will be "excess" generation at the end of the billing period. Excess generation, as it is used in the statute, refers to excess at the end of the month that is then rolled-over as a "net excess kWh credit." As subsection (4) of Paragraph (D) states, the "net excess kWh credit" is a unit that is applied to "future billing periods."

Q. IS THERE ANY OTHER SUPPORT IN THE STATUTE TO DISTINGUISH ENERGY EXPORTS FROM THIS "NET EXCESS KWH CREDIT" CONCEPT?

A. Yes. Paragraph (E) requires reporting of "the estimated net kilowatt hours received from customer-generators." The term "net excess kWh credits" is used as if it is a determinable number and that estimation is not required. In fact, the process of measuring the difference between electricity supplied to the customer and that which is supplied from the customer to the utility creates a definite number. Without sophisticated metering in place, exports must be estimated, as it is difficult to tell from a net electrical energy measurement how much electricity was generated and consumed instantaneously onsite, particularly with a single, bidirectional meter.

Q. DOES THE STATUTE EXPRESSLY PROVIDE THAT NET EXCESS KWH CREDITS SHOULD BE GIVEN FULL RETAIL VALUE (*I.E.*, BANKED KWHS SHOULD APPLY ON A 1:1 BASIS TO OFFSET FUTURE USAGE)?

A. The statute does not explicitly address the value of "rollover" excess kWh credits. The statute implies that a kWh credit might be applied to offset a purchased kWh in a future period, as it is said to "offset the customer-generator's usage during the future billing periods." It would be reasonable to interpret this provision to indicate a full retail 1:1 application of banked excess kWh credits to future usage of kWh.

Q. IS THE UTILITY "STORING" THESE BANKED EXCESS KWHS FOR USE AT A LATER TIME, FOR WHICH IT SHOULD BE COMPENSATED?

A. No. As described in Mr. Beach's testimony, net metering does not involve the storage of electricity. The banking described in § 58-40-20(D)(4) is simply an accounting process to keep track of any exports from the customer-generator each month to use as credits later to pay for imports from the grid. As stated by Mr. Beach, this accounting process does not represent any actual use of the grid to "store" or "bank" electrons or energy.

Q. AT THE END OF THE YEAR, ALL BANKED NET EXCESS KWH CREDITS ARE ZEROED OUT AT THE UTILITY'S AVOIDED COST RATE. IS THIS THE SAME AS THE VALUE DETERMINED BY THE METHODOLOGY UNDER DEVELOPMENT HERE?

A. Not necessarily. The statute describes paying out excess kWh credits at the utility's avoided cost for qualif[ying] facilities. There is a strong likelihood that the methodology developed to calculated avoided costs for renewable energy resources will be distinct from the published avoided cost rate for QFs.

Q. WHY WOULD THE AVOIDED COST RATE FOR QUALIFYING FACILITIES BE ANY DIFFERENT THAN A VALUATION METHODOLOGY FOR NET METERED SYSTEMS?

A. As was recently discussed by Duke Energy Carolinas and Duke Energy Progress in a North Carolina avoided cost proceeding (Docket No. E-100, Sub 140), the avoided cost rate for QFs is limited to categories of value prescribed by regulations of the Federal Energy Regulatory Commission (FERC). A net metering program, in contrast, is a "policy-driven program" that may include additional categories.[1] The statute gives the Commission the ability to consider a broader range of benefit and cost categories in determining avoided costs than traditionally considered in a QF rate proceeding.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. In reviewing the provisions of the South Carolina net metering statute, I reach the following conclusions:

- The statute provides for a "true" net metering regime, in that usage and production are offset over the billing period to arrive at a single number.
- The statute contemplates only the measurement of the ***quantity*** of kWhs, and does not provide for ***valuation*** of kWhs in determining a customer-

[1] *See* North Carolina Utilities Commission, Docket No. E-100, Sub 140, Transcript of Testimony Heard 7-10-14, Vol. 2, p. 86, lines 7 - 16 (Witness Bowman acknowledging that broader consideration of benefits may be appropriate for policy-driven programs and agreeing that net metering is a policy-driven program in the context of North Carolina energy policy).

generator's monthly bill (as would occur under a value of solar tariff approach, for example).

ACKNOWLEDGEMENT OF SETTLEMENT

Q. NOTWITHSTANDING YOUR EARLIER TESTIMONY, DID TASC ENTER INTO A SETTLEMENT OF THIS MATTER?

A. Yes. It is my understanding that TASC joined the Settlement Agreement that is being filed on December 11, 2014, in the spirit of compromise. TASC supports the Settlement Agreement and asks that the Commission approve it.

Q. FROM YOUR PERSPECTIVE, DOES THE SETTLEMENT PROVIDE FOR FULL RETAIL NET METERING?

A. Yes. The Settlement Agreement provides for full retail net metering, which is consistent with my analysis of the law. As discussed in the testimony of TASC witness Barnes, the form of net metering provided by this Settlement features several best practices, including full retail credit for "excess kWh credits" and protection against any additional charges, beyond those charged to non-participating customers, for a specified term. The net metering structure approved by this Settlement is an important building block to a thriving solar market in South Carolina.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Direct Testimony of James M. Van Nostrand
The Alliance for Solar Choice
DOCKET NO. 2014-246-E

EXHIBIT JMV-1

James M. (Jamie) Van Nostrand

West Virginia University College of Law
P.O. Box 6130
Morgantown, WV 26506-6130
(304) 293-4694 (Office)
(304) 777-6050 (Cell)
E-Mail: james.vannostrand@mail.wvu.edu

Current Position

Associate Professor
Director, Center for Energy and Sustainable Development July 2011 – present
West Virginia University College of Law

The Center for Energy and Sustainable Development conducts objective, unbiased research and policy analyses; provides a forum for issues to be explored by the various stakeholders; and promotes policies that strike a balance between the development of energy resources and protection of the environment.

Prior Employment Experience

Executive Director May 2008 – July 2011
Pace Energy and Climate Center
Pace University School of Law

Executive Director of multi-disciplinary research, policy and advocacy organization focused on energy and sustainability issues and climate change law and policy; the Center is active in energy and sustainability policy matters in New York and throughout the Northeast; the Center combines objective, unbiased research and legal and policy analysis with effective advocacy in achieving necessary market and regulatory reforms supportive of renewable energy, energy efficiency and clean distributed generation.

Perkins Coie LLP
Bellevue, WA office October 1985 – November 1999
Portland, OR office July 2006 – February 2009

Partner (associate prior to January 1990) in the energy and regulatory practice in Northwest's largest law firm; practice emphasis on electricity and gas regulation, utility mergers and acquisitions, telecommunications and administrative law; recipient of Energy Bar Association 2007 State Regulatory Practitioner of the Year; included in "The Best Lawyers in America" (Wood/White, 10th, 11th, 12th and 13th editions)

Clients/Representative Transactions: PacifiCorp retail rate proceedings (WA); Puget Sound Energy transmission rate proceeding (FERC), retail rate proceedings (WA); Portland General Electric retail rate proceedings (OR); Northwest Natural Gas Company retail rate proceedings (WA and OR); Cascade Natural Gas Company retail rate proceedings (WA and OR); regulatory approval for Macquarie acquisition of Puget Sound Energy (WA); regulatory approval for MDU Resources Group, Inc. acquisition of Cascade Natural Gas Company (WA and OR); regulatory approval for ScottishPower acquisition of PacifiCorp (WA, OR, ID, UT, CA, and WY); regulatory approval for Qwest acquisition of U S WEST (WA); regulatory approval for merger of Puget Sound Power & Light Company and Washington Natural Gas Company to form Puget Sound Energy (WA).

Stoel Rives LLP, Seattle and Portland offices November 1999 – July 2006

Partner in the Energy & Telecommunications practice group, with practice emphasis on electricity and gas regulation, utility mergers and acquisitions, telecommunications and administrative law

Clients/Representative Transactions: PacifiCorp retail rate proceedings (WA, OR, ID, CA, UT and WY); Portland General Electric retail rate proceedings (OR); Northwest Natural Gas Company retail rate proceedings (OR);

Cascade Natural Gas Company retail rate proceedings (OR); regulatory approval for MidAmerican Energy Holding Company acquisition of PacifiCorp (WA and ID).

New York Public Service Commission, Albany, New York July 1980 – September 1985

Assistant to the Commission for Opinions and Review (3 ½ years); Assistant to the Chairman (1 ½ years); legal and policy analysis, opinion-writing for commissioners, Chairman in utility rate cases

Education

LL.M., Environmental Law (Climate Change Track), Pace University School of Law (2011)

M.A., Economics, State University of New York at Albany (1985)

J.D., University of Iowa College of Law (With High Honors) (1979)
Order of the Coif; Class Rank 9/201
Associate editor, *Journal of Corporation Law*

B.A., Economics, University of Northern Iowa (With Highest Honors) (1976)

Teaching Experience

West Virginia University College of Law, Morgantown, WV – Associate Professor, Fall 2011 to Present – Teach various energy and environmental courses (Energy Regulation, Markets & the Environment, Science & Technology of Energy, Siting and Permitting of Energy Facilities, Environmental Protection Law, Alternative Energy & Renewable Fuels)

University of Pittsburgh School of Law, Pittsburgh, PA – Adjunct Faculty, Spring 2015 – Teach Environmental Law

University of Iowa College of Law, Iowa City, IA – Visiting Professor, Spring 2008 – Taught courses in Energy Law & Regulated Industries, Administrative Law

University of Tennessee College of Law, Knoxville, TN – Visiting Professor, Clayton Center for Entrepreneurial Law, Fall 2007 – Taught courses in Energy Law & Regulated Industries, Business Associations

Lewis & Clark Law School, Portland, OR – Adjunct Faculty, Spring 2007, taught 3-credit course in Energy Law and Economic Regulation of Utilities

Willamette University, Atkinson Graduate School of Management, Utility Management Certificate Program – Assisted in developing curriculum for MBA-level program for utility managers; instructor, 2005 to Present

Publications

"Getting to Utility 2.0: The Utility of the Future and a New Regulatory Paradigm," to be published in San Diego Journal for Climate and Energy Law, May 2015

"Keeping the Lights on During Superstorm Sandy: Climate Change Adaptation and the Resiliency Benefits of Distributed Generation," to be published in New York University Environmental Law Journal, February 2015

"An Energy and Sustainability Roadmap for West Virginia," 115 West Virginia Law Review 885 (2013)

"Energy and Environmental Justice: How States Can Integrate Environmental Justice into Energy-Related Proceedings," 61 Catholic University Law Review 701 (2012)

Chapter 19, "Biofuels", THE LAW OF CLEAN ENERGY: EFFICIENCY AND RENEWABLES, edited by Michael B. Gerrard, American Bar Association, 2011 (with A.M. Hirschberger).

"Parametric Insurance: Using Objective Measures to Address the Impacts of Natural Disasters and Climate Change," 23Environmental Claims Journal 227, (2011) (with John G. Nevius)

"Implications of a Federal RPS: Will It Supplement or Supplant the Existing State Initiatives?" 41 Toledo Law Review 853 (2010) (with A. M. Hirschberger)

"Legal Issues in Financing Energy Efficiency," 2 The George Washington University Journal of Energy and Environmental Law 1 (Winter 2011)

"New York's Roadmap for Reducing Greenhouse Gases in the Transportation Sector," University of Illinois Law Review, Vol. 2011, No. 2 at 475 (with A.M. Hirschberger).

"Preserving the Public Interest through Alternative Dispute Resolution of Utility Retail Rate Cases," 27 Pace Environmental Law Review 227 (2009) (with Erin Honaker)

"Constitutional Limitations on the Ability of States to Rehabilitate Their Failed Electric Utility Restructuring Plans," 31 Seattle University Law Review 593 (2008)

"Representing the Utility in State Retail Rate Proceedings," *The Best Practices of Leading Energy Lawyers: Successful Strategies and Best Practices for Dealing with Energy-Related Legal Issues*, Aspatore, Inc. (2007)

"The Standard for Setting Utility Rates in Wyoming: Restoring the Required Balance Between Investors and Customers," 4 WY.L.R. 245 (2004)

Co-Editor-In-Chief, *Washington Administrative Law Practice Manual*, Butterworth

"The Legislative Evolution of Title I of the Public Utilities Regulatory Policies Act of 1978: A Study in Compromise," 5 J.CORP.L 105 (1979)

"Betterment Accounting: A Requiem by the SEC?" 4 J.CORP.L. 213 (1978)

Conferences Organized

"Regulation of CO_2 Emissions from Power Plants: Flexibility and the Path Forward for Coal Dependent States," West Virginia University College of Law, Morgantown, WV (February 2014)

"Natural Gas as the Bridge to Sustainability and Economic Growth: Exploring Policies to Stimulate the Use of Shale Gas Resources," West Virginia University College of Law, Morgantown, WV (April 2013)

"Drilling Down on Regulatory Challenges: Balancing Preservation and Profitability in the Development of Shale Gas Resources," West Virginia University College of Law, Morgantown, WV (October 2011)

International Presentations

"Getting to Utility 2.0: Merging Technological Innovation and Capital Deployment with the Energy Market Regulatory Paradigm," IUCN Academy of Environmental Law, 12th Annual Colloquium, Universitat Rovira i Virgili, Tarragona, Catalonia, Spain (July 2014)

"Distributed Generation as a Climate Change Strategy," London Climate Change Symposium, Oxford and Cambridge University Club, London, England (June 2013)

"The Potential Role of Natural Gas in Poland's Energy Planning," Guest Lecture at Szkola Glowna Gospodarstwa Wiejskiego (SGGW), Warsaw, Poland (June 2013)

"Development Trends and Importance of Natural Gas in the Economy," Drilling Oil-Gas AGH 2013, Akademia Gorniczo-Hutnicza (AGH), Krakow, Poland (June 2013)

Two-day executive course for national stakeholders on Climate Change Law and Policy, with Professor Nicholas A. Robinson, sponsored by the Environmental Education Center of Ilia State University (Tbilisi Georgia), the Center for Environmental Legal Studies of Pace Law School, and the International Union for the Conservation of Nature (IUCN), Ilia State University Institute of Alpine Ecology, Stephantsminda, Georgia (May 2011)

"Lessons Learned From Emissions Trading Under the Northeast Regional Greenhouse Gas Initiative (RGGI)," Green Korea 2010 Conference, Seoul, South Korea (September 2010)

Testimony

"Regulatory Hurdles to Cost Recovery for Coal Plant Maintenance and Upgrades," Testimony to U.S. Senate Energy and Natural Resources Committee, Subcommittee on Public Lands, Forests and Mining, Field Hearing, Morgantown, WV (September 2013)

Other Recent Presentations

"Utility of the Future and the Business Model under a New Regulatory Paradigm," University of San Diego School of Law, Sixth Annual Climate and Energy Law Symposium, San Diego, CA (November 2014)

"Clean Power and Carbon: A View from the States, Regulation of CO_2 Emissions from Existing Power Plants under the Clean Air Act," Energy & Mineral Law Foundation, Kentucky Mineral Law Conference, Lexington, KY (October 2014)

"What's Coming Down the Tracks for Midstream Operators in 2014? Emerging Issues and Regulatory Update for Crude Oil by Rail," Energy & Mineral Law Foundation 35th Annual Institute, White Sulphur Springs, WV (June 2014)

"Getting to Utility 2.0: The Evolution of the Energy Market Regulatory Paradigm to Accommodate the Customer-Centric Utility of the Future," Albany Law School Government Law Center and New York State Department of Public Service Symposium "An Energy Agenda for the Future," Albany, NY (May 2014)

"Starting from Scratch: Promoting Energy Efficiency Without the Foundations of IRP or an EERS," American Council for an Energy-Efficient Economy (ACEEE) National Conference on Energy Efficiency as a Resource, Nashville, TN (September 2013)

"Who Has the Power? Panel Discussion/Forum on Electric Utilities in West Virginia," Wheeling Academy of Law and Science, Wheeling, WV (September 2013)

"Workshop on the Development of Unconventional Hydrocarbons in the Appalachian Basin," National Research Council, invited participant, West Virginia University, Morgantown, WV (September 2013)

"Coal and Biomass Opportunities: Energy Policies and Environmental Impacts," Conference on Coal and Biomass Opportunities, Appalachian Hardwood Center and National Research Center for Coal and Energy at West Virginia University (September 2012)

"Energy Trends in West Virginia," West Virginia Land and Mineral Owners Association Annual Meeting (May 2012)

"Integration of Environmental Issues in Electric Utility Regulatory Proceedings," Washington & Lee College of Law Energy Symposium (February 2012)

"Adaptation Strategies: Responding to Climate Change as the New 'Normal'," Annual Meeting of Association of American Law Schools (January 2012)

"The Future of Energy: A Discussion of Alternative Energy and New Technology," conference on Environmental Sustainability presented by The Sisters of the Divine Compassion, "Going Green: Moral Imperative and Balancing Act" (May 2011)

"Get Empowered: Renewable Energy Now! A Panel Discussion on Post-Fossil Fuel Energy Solutions that Preserve New York's Natural Resources," Westchester for Change (April 2011)

"The Role of Renewable Energy in the US in the 21st Century," Westchester Community College 2011 Domestic Policy Series (April 2011)

"The Fracking Equation: Natural Gas Extraction plus Clean Water," 16th Annual Tulane Law School Summit on Environmental Law and Policy: The Energy Equation (April 2011)

"Hydrofracking: The Explosive Issue of Natural Gas Drilling," Pace Law School Center for Environmental Legal Studies (April 2011)

"Future of Energy," Bedford 2020 Environmental Action Day, Bedford, NY (January 2011)

"Transforming New York's Energy System," Cornell University, ILR School, Global Labor Institute Conference on "Perspectives on the Future of Climate Protection and Economic Development in New York State," New York City (November 2010)

"Legal and Constitutional Foundation for Addressing Climate Change Issues," Constitution Day Keynote Address, Dutchess Community College (September 2010)

"Update on Policy Development at the National Level," Sixth Annual Conference on Renewable Energy in the Pacific Northwest, Law Seminars International, Seattle, Washington (August 2010)

"Indian Point: Reliability, Economic and Environmental Considerations," New York Association for Energy Economics (July 2010)

"New York's Roadmap for Reducing Greenhouse Gases in the Transportation Sector," Second Annual Biofuels Law and Regulation Conference, University of Illinois College of Law (April 2010)

"Implications of a Federal RPS: Will It Supplement or Supplant the Existing State Initiatives?" Climate Change and the Future of Energy, University of Toledo College of Law (March 2010)

"Legal Issues in Financing Energy Efficiency," Next Generation Energy and the Law, The George Washington University Law School (February 2010)

"Understanding Energy in 2010: RECs, CERES, and Beyond," American Law Institute/American Bar Association, co-sponsored by the Environmental Law Institute, ALI-ABA Teleseminar/Audio Webcast (December 2009)

"The Impact of the Recession and Stimulus Package on Renewable Energy Development," Fifth Annual Conference on Renewable Energy in the Pacific Northwest, Law Seminars International, Seattle, Washington (August 2009)

"Who Will Pay: The Impact of the ACES Act on Utility Rates," ABA Annual Meeting, Section of Real Property, Trust and Estate Law, "Greenhouse Gas Emissions: Who Will Regulate, How Will It Be Done, and Who Will Pay?" Chicago, IL (July 2009)

"Northeast Regional Greenhouse Gas Initiative (RGGI) and Carbon Trading," New Jersey Association of Energy Engineers 2009 Energy Futures Forum, Union, NJ (May 2009)

"Capturing the Value of Distributed Generation for More Effective Policymaking," American Solar Energy Society, SOLAR 2009, Buffalo, NY (May 2009)

"Federal Smart Grid Initiatives," Pace Environmental Law Society Earth Week Panel: "The Smart Grid: The Legal and Logistical Impediments of Upgrading our Nation's Electricity Grid," White Plains, NY (April 2009)

"Global Warming Today: A Hot Topic in a Cold Economic Climate," ABA Section of International Law Annual Meeting, Washington, DC (April 2009)

"Small Cogen: CHP for Individual Buildings in New York City," New York Chapter of U.S. Green Building Council (January 2009)

"Nuclear Relicensing Issues: Where Do We Get the Power and at What Price?" Pace Environmental Law Review Nuclear Relicensing Symposium (October 2008)

"Emerging International Issues in Confronting Climate Change: Adaptation and Allowance Trading," American Branch of the International Law Association, International Law Weekend 2008 (October 2008)

"Distributed Energy and the Supply Side of Electricity," EPA Workshop on Energy and Environmental Sustainability in a Carbon-Constrained Society (September 2008)

"(Pipe)line Dreams: Solving the Puzzle of Energy Independence," New York Law School's "Justice Speaks" Series (September 2008)

"Update on Renewable Portfolio Standards, Tax Incentives, Other Policy Developments," Fourth Annual Conference on Renewable Energy in the Pacific Northwest, Law Seminars International, Seattle, Washington (August 2008)

"The 'Greening' of Energy Policies Through Renewable Portfolio Standards," Climate Change & Human Rights Symposium, University of Iowa College of Law (February 2008)

"The 'Greening' of America's Energy Policy," All-Campus Lecture Sponsored by the Clayton Center for Entrepreneurial Law, University of Tennessee College of Law (September 2007)

"State Regulation After the Repeal of PUHCA," Energy Bar Association Annual Meeting, Washington, D.C. (April 2006)